

FIG. 1

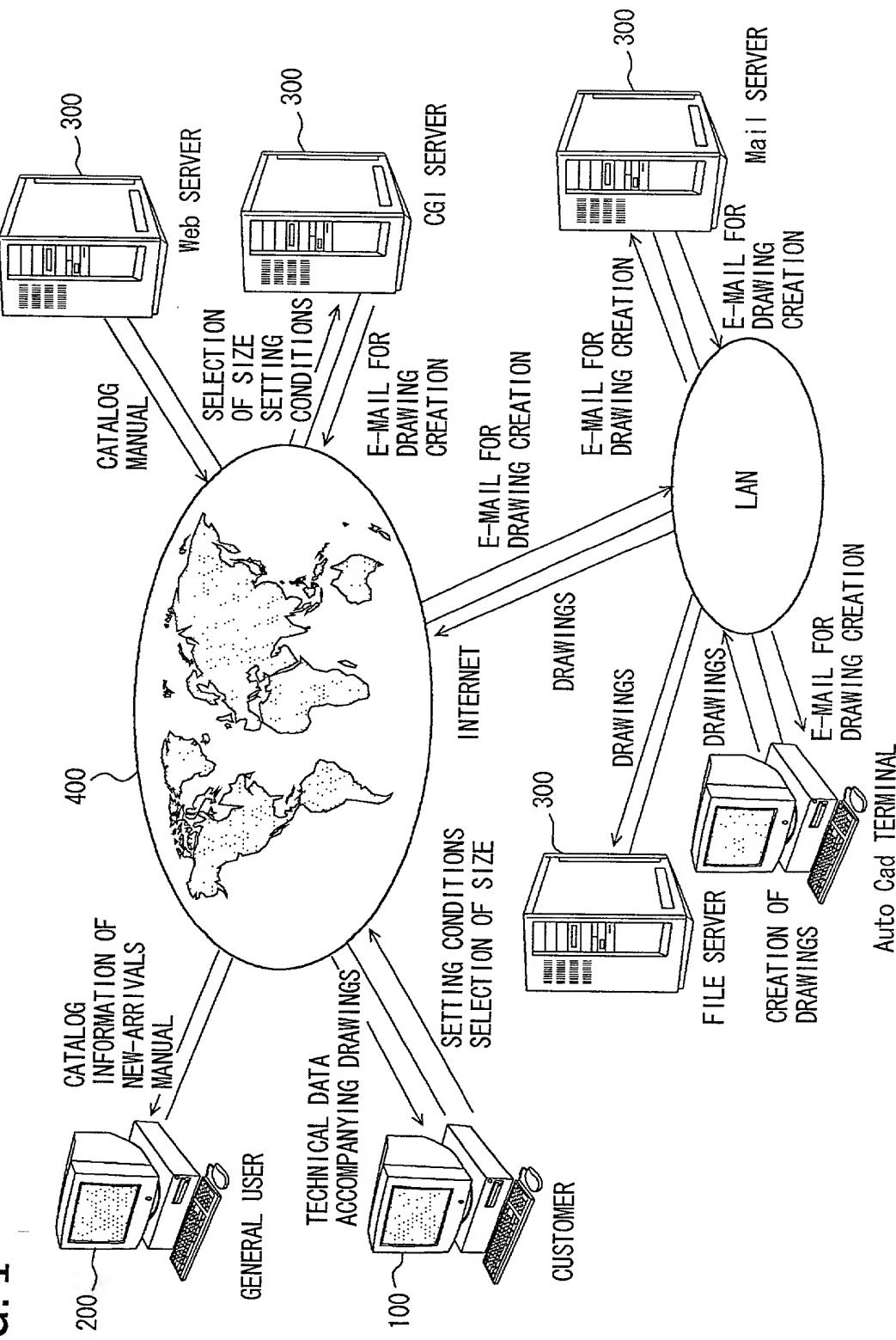


FIG. 2

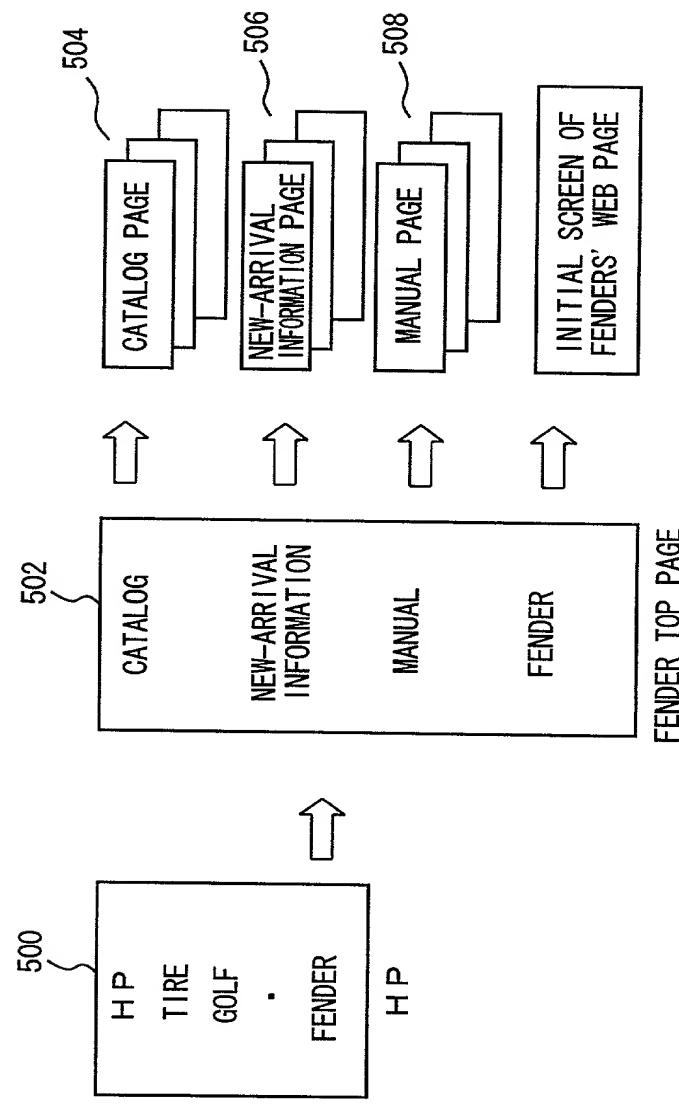


FIG. 3

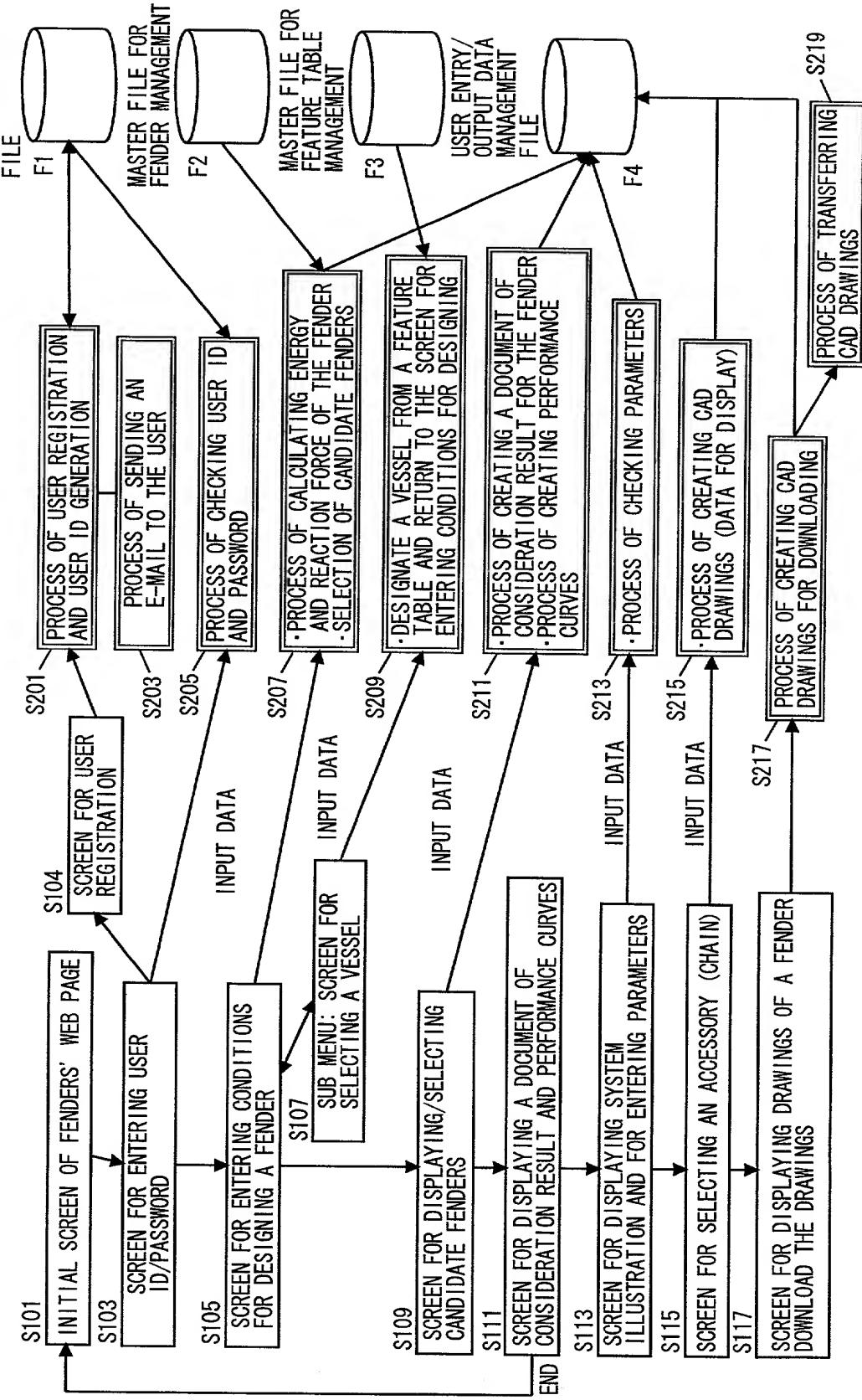


FIG. 4 INITIAL SCREEN DESCRIPTION OF THE SYSTEM

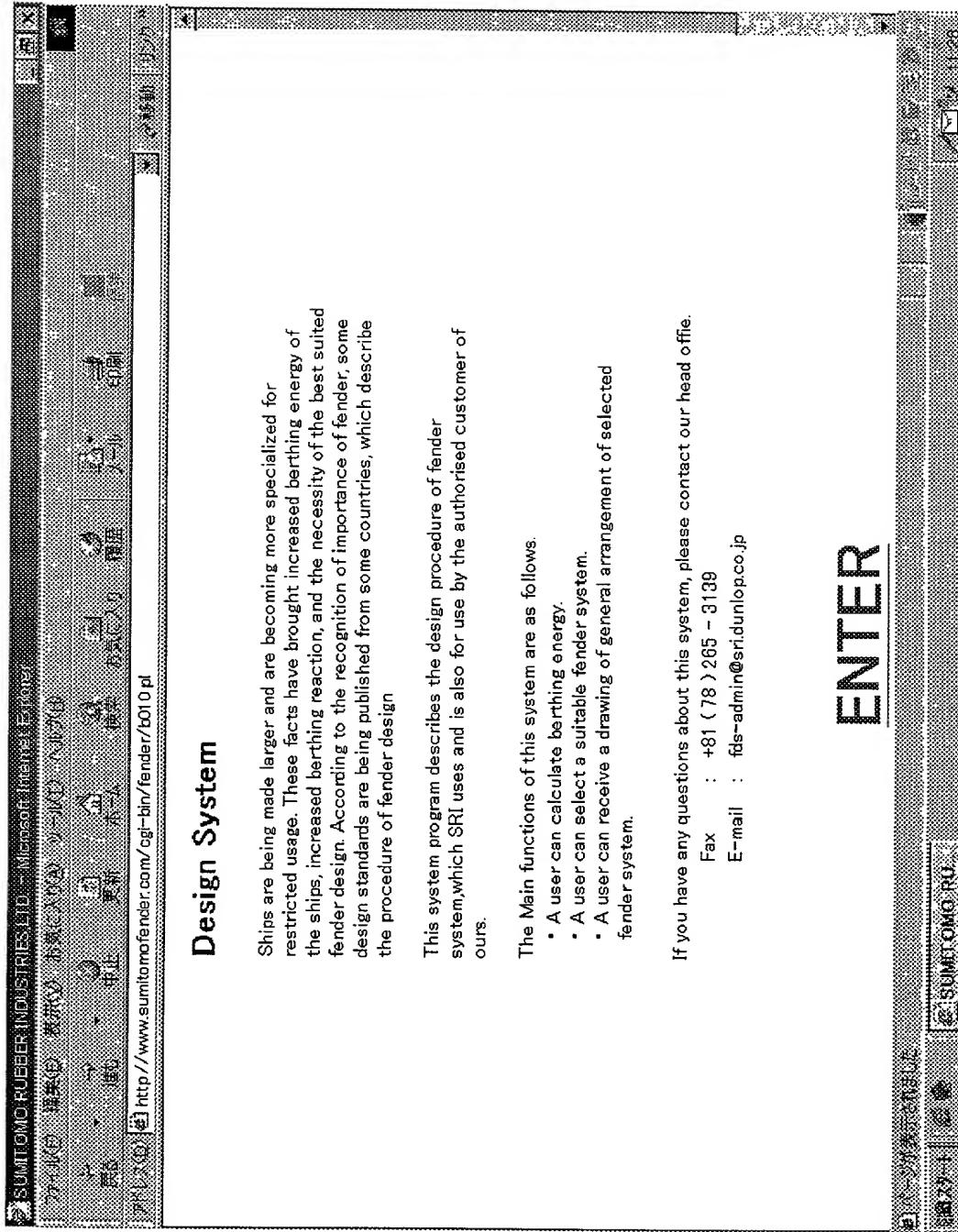


FIG. 5 SCREEN FOR ENTERING USER ID AND PASSWORD

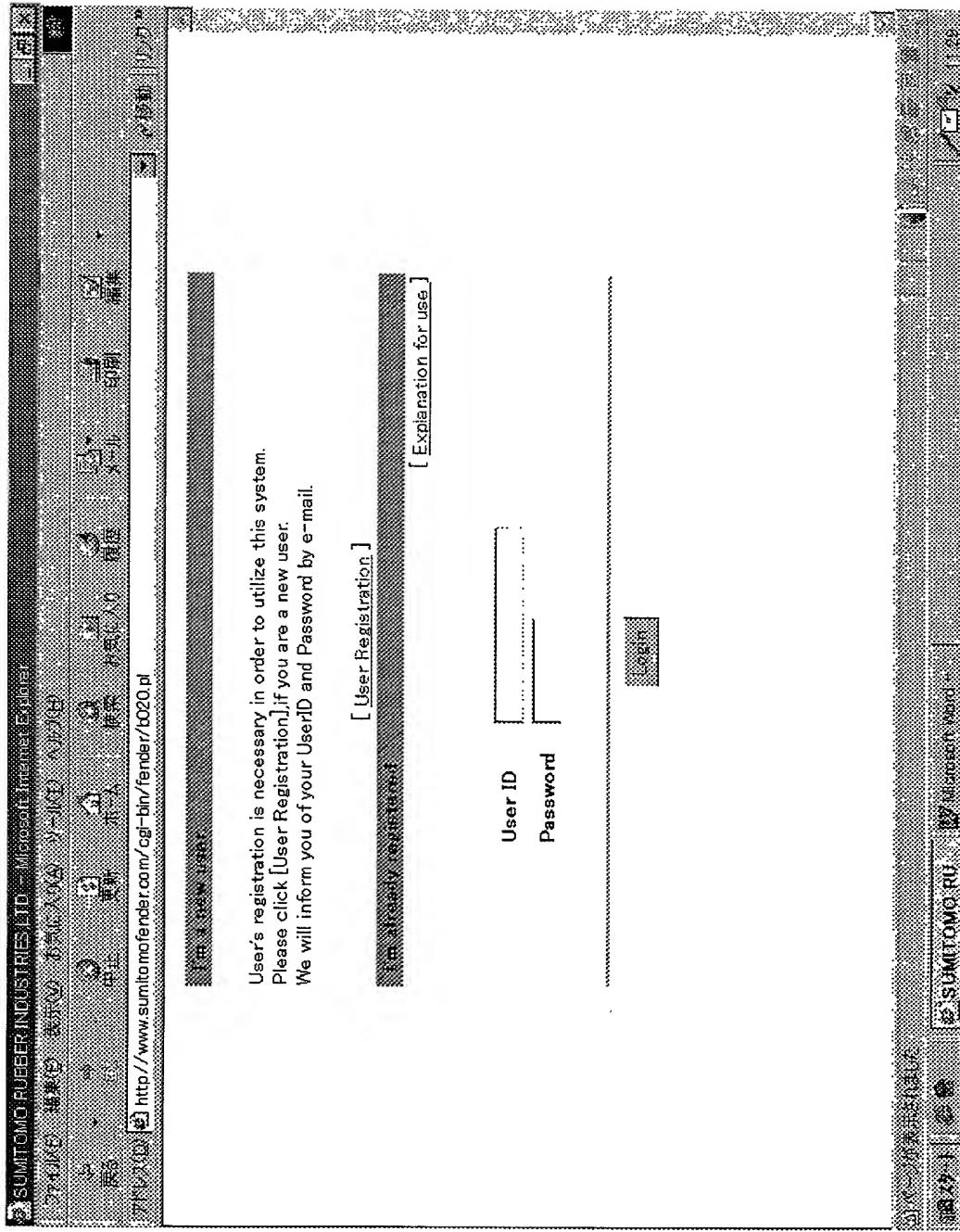


FIG. 6 SCREEN FOR USER REGISTRATION

SUMITOMO RUBBER INDUSTRIES LTD - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.sumitomerubber.com/designsystem/img/dd21.html

Search

Please enter your registration information in the field provided so that we can keep you updated about the program.
After registration we will send you your 'user-id' by e-mail.

Name

Company

Category Port authority

Category (others)

Title

Country

Tel

Fax

E-mail

Password

Password (Re-type)

Back Forward Stop Home

FIG. 7

(THE TOP HALF OF) SCREEN FOR ENTERING CONDITIONS FOR
DESIGNING FENDER

 SUMITOMO RUBBER INDUSTRIES LTD.

http://www.sumitomo-fender.com/cgi-bin/fender/k0301.cgi

Project

Please input the following information for administering this system.

Kind of berth New Berth Existing Berth

Project Name VANTERM PROJECT

Port VANTERM

Country CANADA

Constructor VANCOUVER PILE DRIVING

Consultant WESTMAR

Design Stage Plan Feasibility Study Detail Design

NEXT->

  <img alt="Checkmark icon" data-bbox

FIG. 8

(THE BOTTOM HALF OF) SCREEN FOR ENTERING CONDITIONS
FOR DESIGNING FENDER

SUMITOMO RUBBER INDUSTRIES LTD. Mitsubishi Rubber Industries

http://www.sumitomofender.com/cgi-bin/fender/do50.pl

Design criteria

Technical standards for port and harbour facilities in Japan

Dimensions of vessels are one of the most important factors in fender design.
In the case when the dimensions can be obtained, the calculation should be done by the data.
If they can't, such dimensions should be assumed by the kind and the size of the vessel.
There are some proposals about the relations of data.
Please obtain the figure according to one of them and input it.

Type of vessel

Weight : unit (t) The data with(*) are the necessary data to calculate the berthing energy.

Gross Tonnage (GRT) Deadweight Tonnage (DWT) reference

Dimensions : unit (m)
Length overall (Loa) The data with(*) are the necessary data to calculate the berthing energy.

Breadth * (B) Depth (D) Length between perpendicular * (Lpp)

Hull pressure : unit (kN/m²) Add Another type and size vessel ?
If yes, click on "Add" again

Delete	Type of vessel	GRT	DWT	DT	Loa	Lpp	B	D	d	Hull pressure
<input checked="" type="checkbox"/>	General cargo ship (smaller than 10000DWT)	4000	5000	5500	100	105	20	12	7	196

FIG. 9 SCREEN FOR SELECTING VESSEL (SUB MENU)

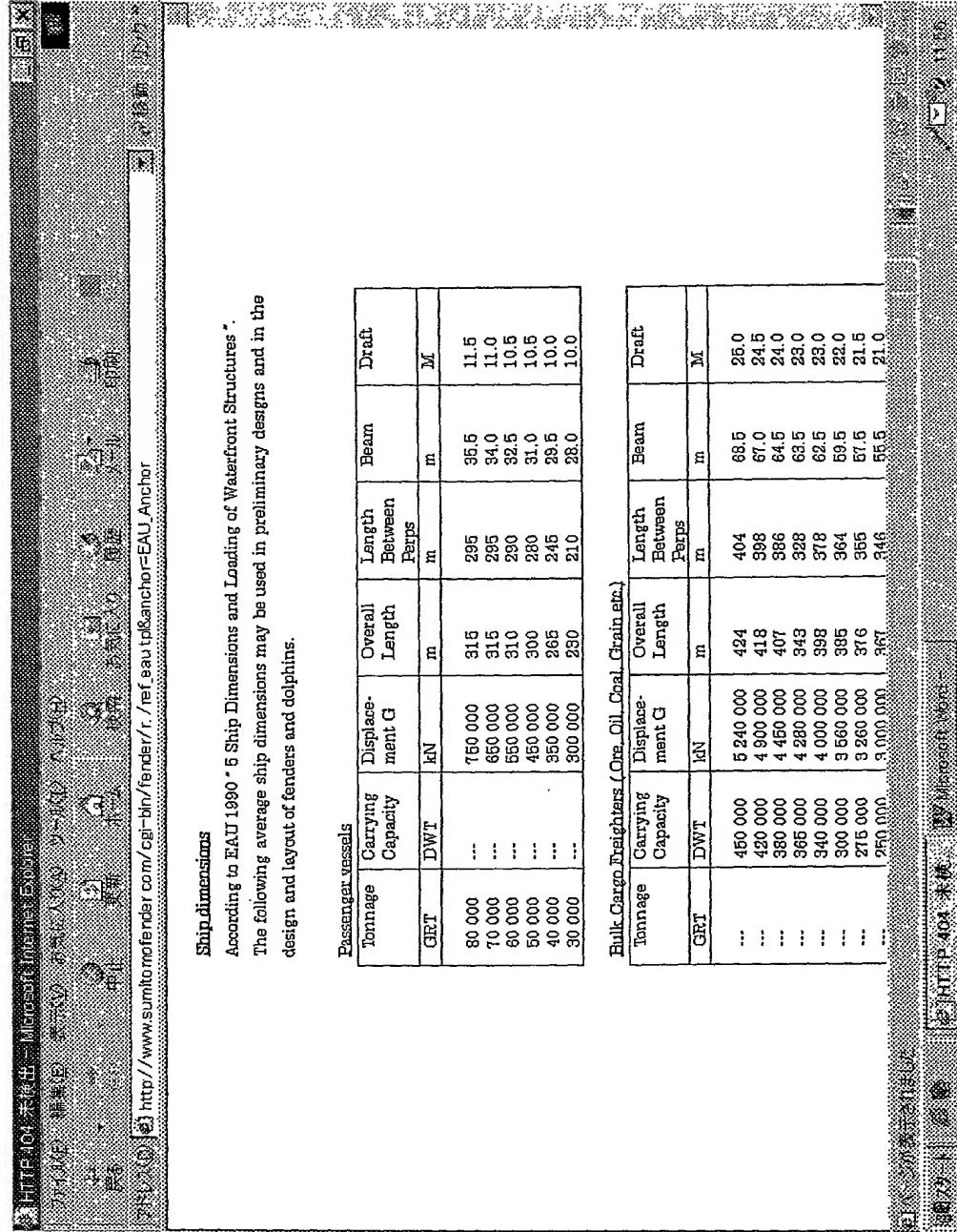


FIG. 10 SCREEN FOR DISPLAYING/SELECTING CANDIDATE FENDERS

SUMITOMO RUBBER INDUSTRIES LTD. - Microsoft Internet Explorer 5.01

158

http://www.sumitomorubber.com/cg-bl/fender/0070.phtml

Result of calculation

Type of Fender	: UPI
Height	: 600

Upper height : 600

Selection list

	Length	Installation	Rubber compound	Width
C	1000	V	CPS	1400
C	1000	H	CPS	1400
C	1000	V	CPA	1400
C	1000	H	CPA	1400
C	1000	V	CP0	1400
C	1000	H	CP0	1400
C	1000	V	CP1	1400
C	1000	H	CP1	1400
C	1000	V	CP2	1400
C	1000	H	CP2	1400
C	1000	V	CP3	1400
C	1000	H	CP3	1400
C	1000	V	CP4	1400
C	1000	H	CP4	1400

V : Vertical installation , H : Horizontal installation

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FIG. 11
SCREEN FOR DISPLAYING PERFORMANCE CURVES AND
DOCUMENT OF CONSIDERATION RESULTS

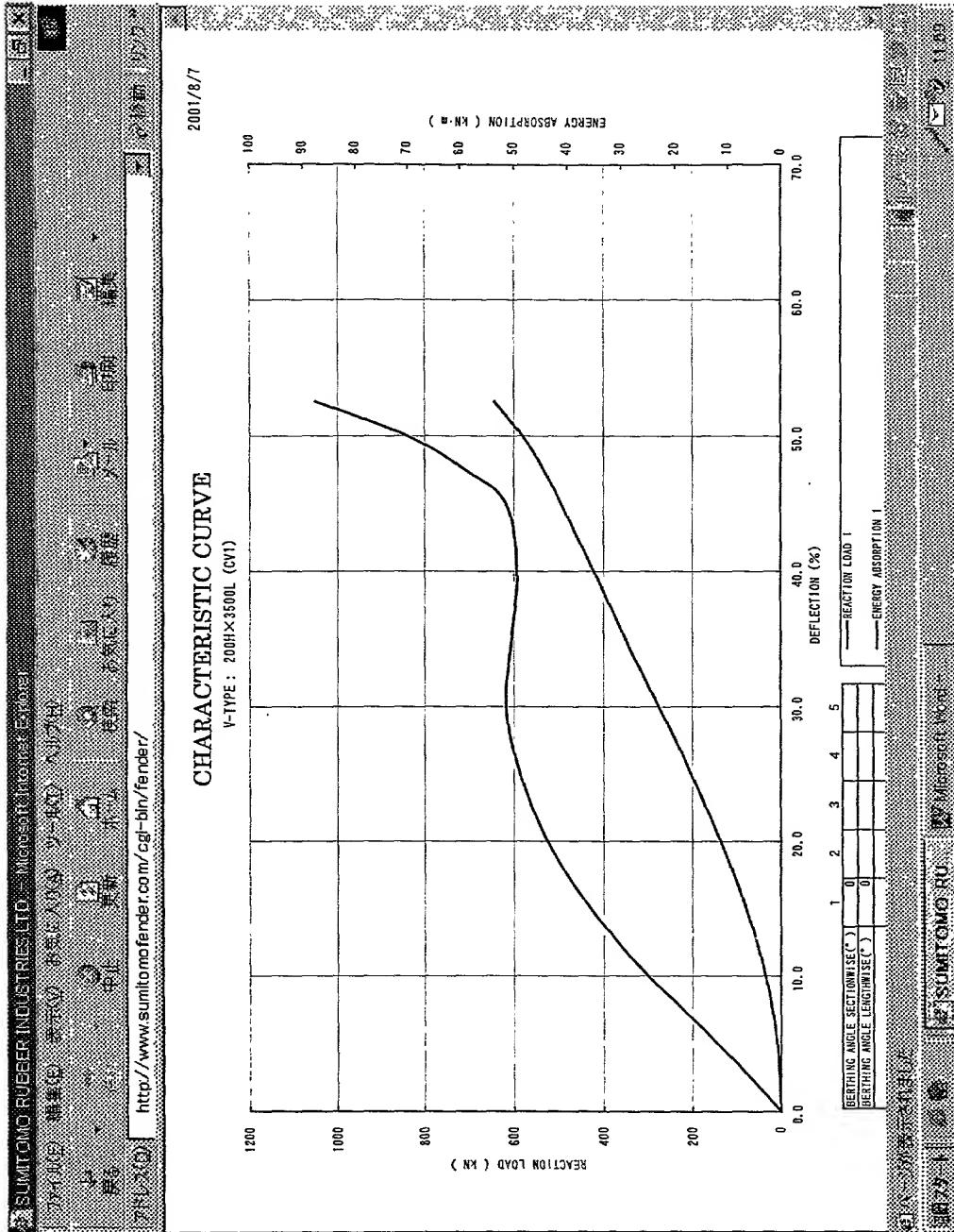


FIG. 12

SCREEN FOR DISPLAYING SYSTEM ILLUSTRATION AND FOR ENTERING PARAMETERS

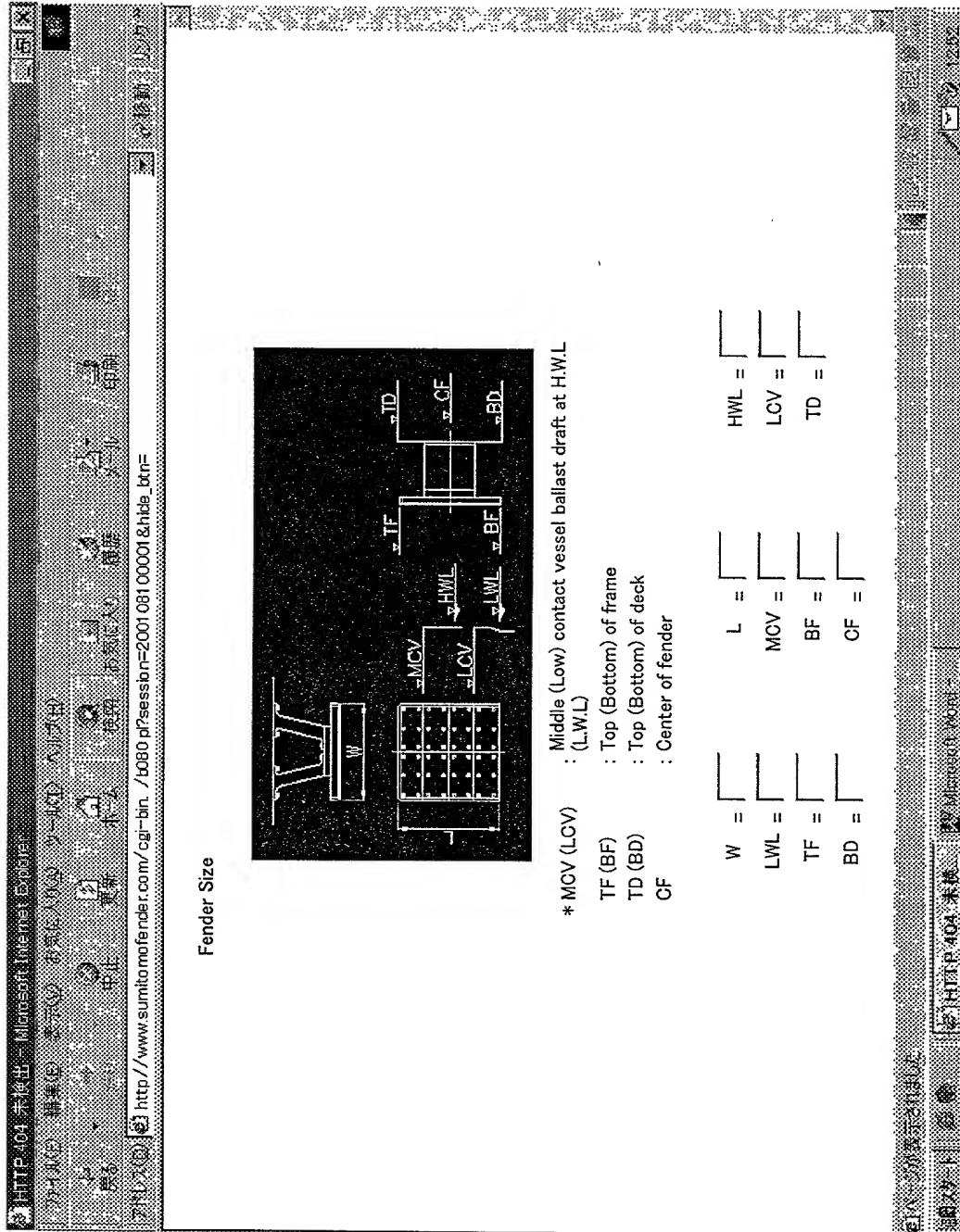


FIG. 13

SCREEN FOR SELECTING ACCESSORY (CHAIN)

The screenshot shows a software interface for selecting a horizontal chain. At the top, there's a header with the company logo and name: "SUMITOMO RUBBER INDUSTRIES LTD. - Manufacturer of Marine Equipment". Below the header, there's a navigation menu with options like "Home", "About Us", "Products", "Services", "Contact Us", and "Logout". The main content area has a title "Selection of horizontal chain".

In the center, there's a diagram of a ship's hull with a rubbing board installed. A horizontal chain is shown running along the rubbing board. Various dimensions are labeled: L_1 (distance between the lower edge of the rubbing board and the chain position), L_2 (distance between the lower edge of the rubbing board and the center of the fender), and N (number of chains).

Text on the left side of the diagram states: "In case the chain is added in order to prevent the upper part of rubbing board to go ahead by the rolling of mooring ship, Tension load of chain should be calculated by the following formula.

$$T = \frac{(NxR)(1-2\cos\theta)}{N \times L_1}$$

where:
 T = Tension load to the chain.
 Fm = Coefficient of reaction load of fender generated by the rotational motion of ship. (In case max. rolling angle is 4 degrees, it is less than 0.3)
 R = Reaction load at rated deflection.
 L1 = Distance between the lower edge of rubbing board and chain position on rubbing board measured in parallel with rubbing board face.
 L2 = Distance between the lower edge of rubbing board and the center of fender.
 N = Number of chain.
 Sf = Safety factor.

Text on the right side of the diagram states: "However, Horizontal chain is used as the supplement to hanging chain. Its strength should be the same as that of the latter. Moreover, in the cases where ship is in fear to contact to the lower part of rubbing board, it is necessary to study its calculated by following formula.

$$T = \frac{Rx(L_1-L_2) \times Sf}{N \times L_1}$$

where:
 T = Tension load to the chain.
 R = Reaction load at rated deflection.
 L1 = Distance between the lower edge of rubbing board measured in parallel with rubbing board face.
 L2 = Distance between the lower edge of rubbing board and the center of fender.
 N = Number of chain.
 Sf = Safety factor.

FIG. 14 SCREEN FOR DISPLAYING DRAWINGS

